TUNE OUT SMOG

Vehicle Maintainance Guide

Choose Clean Air

A well-maintained vehicle = less emissions

Less emissions = less smog

CLEAN AIR IS YOUR CHOICE

START NOW BY:

Avoiding Unnecessary Driving: Consolidate trips, telecommute, carpool, use mass transit, walk, bike, rollerblade, skate, or even run.

Driving Wisely: Avoid actions that increase gasoline consumption such as excessive idling, quickly accelerating and decelerating, stop-and-go driving, over-using your air conditioner, or carrying excessive weight in the vehicle.

Maintaining Your Vehicle: Follow the guidance in your owner's manual. Seek regular tune-ups by a skilled technician. Check regularly and periodically replace air filters, belts, coolant hoses, fluids, oil, oil filters, and tires (watch pressure and wear). Use this checklist to guide you.

Checking gas mileage: to ensure your vehicle is operating efficiently.

FOUR GOOD REASONS TO PERFORM
Preventative Maintenance on Your Vehicle

1. A well-maintained vehicle saves you hundreds of dollars each year by avoiding major repairs in the future.

2. A well-maintained vehicle is less likely to break down while driving.

3. A well-maintained vehicle protects you and your family because it is safer to drive. About 5% of all motor vehicle accidents are caused by vehicle neglect.

4. A well-maintained vehicle with 50,000 miles on it pollutes only 40% as much as the same vehicle that is poorly maintained.

Half of all of our air pollution comes from vehicle emissions. **YOU** can help make a real contribution to clean air by driving wisely and properly maintaining your vehicle.

MAINTANANCE CHECKLIST

The following information is intended to provide general guidance when having your vehicle serviced. Check your owner's manual for specifics related to your vehicle.

A/T - Automatic Transmission

Overheating causes most failures.

- The A/T can overheat if you rock your car between drive and reverse if you become stuck.
- If the A/T fluid turns brown or has a burnt odor, check the owner's manual or with a technician to determine if fluid and filter need changing.
- For severe driving conditions; see Severe Driving Conditions, change your transmission fluid and filter every 15,000 miles.

A/C - Air Conditioner

Always use factory-recommended refrigerants. Older cars use R-12 (also known as Freon). New cars use R-134a.

- Do not use R12 substitutes, such as propane or butane, due to their EXTREME flammability.
- Never mix refrigerants.

Belts

Old cars have separate belts that run the A/C, alternator, radiator fan, power steering motor, and water pump. New cars have only one belt called a "serpentine" belt.

- Replace single belts at 60,000 miles.
- Replace serpentine belts every two years or at 30,000 miles.
- Replace belts immediately if they are cracked or damaged.

Brakes

Visually inspect brake linings once a year or every 12,000 miles.

- When replacing brake linings or disk brakes, replace in pairs (either both front or both rear) to avoid uneven braking and sideways pulling.

Hydraulic System: Signs of impending brake failure are:

- Brakes pulsate as you come to a stop.
- Hard scraping or grinding sound when brakes are applied.
- Brake light comes on. *Go to service station immediately.* Hydraulic system is probably about to fail.
- A rupture of a brake line will result in a loss of over 50% braking power.

Check Engine Light

Never Ignore Check Engine Light – It is your vehicle's way of telling you that an emissions-related malfunction is present. While you don't need to panic, you should take your vehicle to a qualified service facility as soon as possible. Ignoring the light can mean a much more costly fix in the not too distant future.

Coolant Hoses

Coolant hoses (upper radiator hose, bypass hose, and heater hose) should be changed every four years even if they appear to be undamaged. External appearance of hoses does not indicate their overall condition. To check condition of hoses:

- Engine must be cold.
- Use finger and thumb, not whole hand, to check for weakness.
- Squeeze area of hose near connectors.
- Squeeze area near middle of hose.
- If ends are soft and feel mushy compared to middle of hose, it's probably time to replace hoses.
- Oil spilled on hoses will weaken them.

Cooling Systems

Warning signs of a leaking, clogged or corroded radiator, or leaking hoses, are:

- Temperature gauge runs high.
- Coolant on pavement or floor of passenger compartment.
- Poor A/C or heater performance.

Fuel Efficiency and Mileage

Periodically check your mileage to determine your vehicle's fuel efficiency. Fuel efficiency should remain relatively constant for the same driving conditions and terrain. If it drops, this could be a signal that something is wrong. Mechanical problems might include timing, spark plugs, air-fuel ratios out of adjustment, under-inflated tires, or dirty air filter.

Keep in mind that mileage will change depending on how (ex. whether acceleration is sharp or moderate) and where the vehicle is driven (ex - flat vs. hill, freeway vs. surface streets, etc). EPA mileage is listed in the owner's manual and may be used as an indicator of expected mileage under optimal conditions.

Oil Change

This is the most important preventive measure.

- Change oil every six months or 6,000 miles under normal use.
- Change oil every three months or 3,000 miles under severe use; see Severe Driving Conditions.

Power Steering Fluid

Check power steering fluid and power steering fluid hoses for leaks. Significant loss of fluid can cause the steering to fail; serious accidents have resulted.

- Replace power steering fluid every 24,000 miles.

Severe Driving Conditions

More than 15,000 miles a year under one or more of the following conditions:

- In stop-and-go traffic.
- On snow or ice.
- On hilly terrain.
- In dusty conditions.
- With a trailer/boat in tow.
- In extreme cold and/or heat.

Timing Belts

Not all cars have timing belts. If car is equipped with timing belt, replace it every 60,000 miles. Failure to do so could result in timing belt breakage and expensive engine rebuild or repair to cylinders, valves, and pistons.

Tires

Keep tires properly inflated because:

- Both under-inflation and over-inflation can cause more frequent tire failure.
- Tire pressure drops 1 psi for every 10 degrees in temperature.
- A 10% under-inflation of all four tires will decrease gas mileage by 10%.
- A rhythmic thumping sound while driving may signal that one or more tires are out of balance.
- Tendency to hydroplane on very wet roads increases as tread depth decreases.

Tread should be at least 1 1/6" on two adjacent tread lines. You can easily determine if your tread is too worn by putting a penny in the tread groove of the tire. If you can see the top of Abraham Lincoln's head the tire is too worn and needs to be replaced. Tires should be rotated on a regular basis. Check your owner's manual for guidance.

TUNE-UP Older Vehicle:
(pre-1996)

Adjust:
Curb Idle, fast idle, and timing.

Check:
Carburetor, distributor, cap and rotor, ignition timing.

Replace every 15,000 miles:
Air filter.

Replace every 25,000 miles:
Transmission fluid and filter, PCV valve and filter.

Replace every 30,000 miles:
Distributor points and condensers, spark plugs.

Tune-up - Newer Vehicle (1996 or newer)
Vehicle does not have distributor cap, rotor or carburetor.

Check at 30,000 miles:
Spark plug wires; newer cars run hotter.
Exhaust gas recirculation system (EGR).

Replace:
Oxygen sensor wires: #1 or #2 unheated type at 30,000 to 50,000 miles.
#3or #4 heater type at 60,000 to 100,000 miles.

Replace after 50,000 miles:
Double platinum spark plugs.

Tune-up - All Model Vehicles:

Never ignore Check Engine Light.

Follow recommended maintenance schedule in your owner's manual.

WINTER-izing:

Before winter turns cold, check:

Battery - Check corrosion around terminals and clean with baking soda solution.
Heater operation.
Radiator.
Tire Pressure, including spare. Keep at proper pressure.
Tires deflate as temperatures drop.
Brakes.
Engine oil - Check for proper viscosity.
Windshield wipers, washers, and fluid.
Exterior lights.

Items to store in car during winter:

Blankets/extra winter clothing including hat, gloves.
Sand or cat litter. | Roll of paper towels. | Ice scraper/brush.
Flashlight with fresh batteries. | Small shovel. | Jumper cables.
Flares or bright-colored cones.

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

Choose Clean Air and Air Quality
Mobile Source Programs
c/o Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, UT 84116

www.cleanair.utah.gov